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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,917	08/16/2000	Joseph M. Brand	108298530US	4048

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PERKINS COIE LLP
PATENT-SEA
P.O. BOX 1247
SEATTLE, WA 98111-1247

EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
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2827

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/639,917	Applicant(s) BRAND, JOSEPH M.	
	Examiner James Mitchell	Art Unit 2827	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 26-36 is/are pending in the application.
- 4a) Of the above claim(s) 17, 18, 20, 22 and 26-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 32-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election

1. Applicant's election without traverse of species Figure 2, claims 1-16, and 32-36 in Paper filed March 24, 2003 is acknowledged. Claims 17, 18, 20, 22, and 26-31 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim. Election was made **without** traverse in Paper filed March 24, 2003.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4-7 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kojima et al. (US 5,723,900).

4. Kojima (Fig 4G-J, 8) discloses a method for packaging a microelectronic substrate (13) comprising disposing an encapsulating material (14; Col. 4, Lines 56-58) in direct contact with a surface of the microelectronic substrate and exposing at least a portion of the surface of the microelectronic substrate memory chip (Col. 6, Line 10) by removing a portion of the encapsulating material (Fig 4I) in direct contact with the surface of the microelectronic substrate with the microelectronic in an inherent operable condition (removal performed on inactive surface) after the portion of the encapsulating material is removed; wherein the substrate has a first surface and a second surface

facing opposite the first surface, the first surface having a plurality of bond sites (17) for electrical connection to the microelectronic substrate; further transferring heat by transmitting it directly away from the exposed portion of the surface of the microelectronic substrate and therefore by convection; mounting the microelectronic substrate to a printed circuit board (29; Col. 5, Line 62); further the encapsulant is adjacent both the substrate and the board or support member.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 7, 8, 10-14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima in combination with Yasunaga (US 6,544,814).

7. Kojima discloses the elements stated in paragraph 4 and heat transfer structure with ribs projecting away (32).

8. Kojima does not appear to disclose manipulating or removing the encapsulant material by directing laser radiation at about 4 to 25 watts that inherently sequentially removes portion of the encapsulating material (layer after layer is removed).

9. However, Yasunaga utilizes exposing laser radiation having an inherent power to an encapsulant.

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10. It would have been obvious to one of ordinary skill in the art to form the package of Kojima by directing laser radiation as an alternate method to remove an encapsulant as taught by Yasanuga (Col. 1, lines 29-30).

11. With respect to the laser beam having a power from 4 to 25 watts, the modified prior art discloses the claimed invention except for the laser being 4 to 25 watt. It would have been obvious to one of ordinary skill in the art to have a laser at 4 to 25 watts, since it has been held that discovering optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

12. Claims 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima and Yasanuga in combination with Hong (US 6,297,543).

13. Kojima discloses the elements stated in paragraph 4 and further discloses an aperture (not labeled).

14. Kojima does not appear to disclose manipulating or removing the encapsulant material by directing or engaging laser radiation or beam at about 4 to 25 watts that inherently sequentially removes portion of the encapsulating material (layer after layer is removed), removing an encapsulating material having a thickness greater than about .003 inch or passing wire bonds through an aperture.

15. However, Yasanuga utilizes exposing or engaging laser radiation having an inherent power to an encapsulant, such that an encapsulant having an inherent thickness is removed.

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16. It would have been obvious to one of ordinary skill in the art to form the package of Kojima by directing laser radiation as an equivalent method to remove an encapsulant that has an inherent thickness as taught by Yasanuga (Col. 1, lines 29-30).

17. Hong teaches passing wire bonds through an aperture (Fig 7).

18. It would have been obvious to one of ordinary skill in the art to pass a wire bond through the aperture of Kojima as an alternate means to provide connection as taught by Hong (Abstract).

19. With respect to the laser beam having a power from 4 to 25 watts, the modified prior art discloses a laser having a watt, but not between 4 to 25 watt. It would have been obvious to one ordinary skill in the art to have a laser at 4 to 25 watts, since it has been held that discovering optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

20. With respect to the thickness of the encapsulant being removed, absent evidence of criticality, it would have been obvious for the portion removed to be .003 inch, because it has been held that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. In Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984).

21. Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akram et al (US 6,282,308).

22. Akram (Fig 3,4) discloses a method for packaging a microelectronic substrate (416) disposing encapsulating material (424) in direct contact with the the substrate and forming a heat transfer structure in an external surface of the encapsulating material in direct contact with substrate to define at least one exposed heat transfer surface of the heat transfer structure wherein forming a heat transfer structure includes forming rods of encapsulating material projecting away from the substrate.

23. Akram does not appear to disclose that the appear to show that the projections are cylindrical.

24. In any case, it would have been an obvious matter of design choice bounded by well known manufacturing constraints and ascertainable by routine experimentation and optimization to choose the rod to be cylindrical because applicant has not disclosed that the dimensions are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical, and it appears prima facie that the process would possess utility using another dimension. Indeed, it has been held that mere dimensional limitations are prima facie obvious absent a disclosure that the limitations are for a particular unobvious purpose, produce an unexpected result, or are otherwise critical. See, for example, *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984); *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

Response to Arguments

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25. Applicant's arguments with respect to claim have been considered but are moot in view of the new ground(s) of rejection.

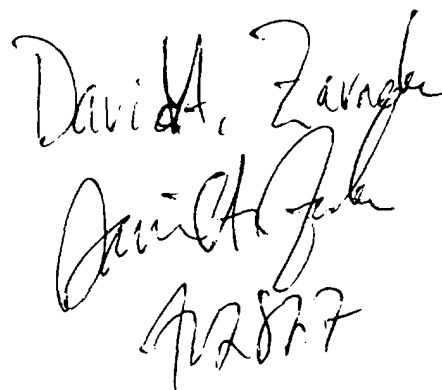
Conclusion

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (703) 305-9883. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3432 for regular communications and (703) 305-3230 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


jmm
June 30, 2003


David A. Zangher
Art Unit 2827